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10/563,252	01/10/2008	Shuichiro Azuma	TSUT-0103	8673
38327	7590	10/07/2011	EXAMINER	
Juan Carlos A. Marquez c/o Stites & Harbison PLLC 1199 North Fairfax Street Suite 900 Alexandria, VA 22314-1437			SAVLA, ARPAN P	
			ART UNIT	PAPER NUMBER
			2185	
			NOTIFICATION DATE	DELIVERY MODE
			10/07/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

iplaw@stites.com

Office Action Summary

Application No.

10/563,252

Applicant(s)

AZUMA ET AL.

Examiner

Arpan P. Savla

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 4,6,7,18-20 and 27-31 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 4,6,7,18-20 and 27-31 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2011 has been entered.

Response to Amendment

This Office action is in response to Applicant's communication filed August 25, 2011 in response to the Office action dated May 25, 2011. Claims 27-31 have been amended. Claims 8 and 21 have been canceled. Claims 4, 6, 7, 18-20, and 27-31 are pending in this application.

OBJECTIONS

Claims

1. In view of Applicant's amendment, the objection to **claim 30** is withdrawn.

REJECTIONS BASED ON PRIOR ART

Claim Rejections - 35 USC § 103

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2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 4, 6, 19, 27-29, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulson (U.S. Patent Application Publication 2002/0083264) in view of Lee et al. (U.S. Patent Application Publication 2003/0172261) (hereinafter "Lee") and Eigen et al. (U.S. Patent Application Publication 2002/0004849) (hereinafter "Eigen").**

4. **As per claim 27**, Coulson discloses a storage device, comprising:

a casing configured to be compatible with a hard disk drive (paragraph 0018; Fig. 1, element 130);

a connector detachably connectable to a host in accordance with the ATA interface standard (paragraph 0032; Fig. 6, elements 106 and 670);

a control section disposed in said casing and configured to control inputting and outputting of data between the storage device and the host via said connector in accordance with the ATA interface standard (paragraph 0019; Fig. 1, element 137);

a first storage section formed of flash memories disposed in said casing, connected to said control section, and configured to provide a first address space that is allocated with a lower portion of an address space allocated to the storage device as seen from said host (paragraphs 0018 and 0021; Fig. 1, element 135; Fig. 2);

and a second storage section formed of a hard disk drive disposed in said casing, connected to said control section, and configured to provide a second address space that is allocated with an upper portion of the address space allocated to the storage device, said second address space being arranged so as to store application data to be used by an application operating on the host (paragraphs 0018, 0021, and 0027; Fig. 1, element 133; Fig. 2).

Coulson does not expressly disclose said first address space being arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system;

and wherein, upon booting of the host, said host reads data of the system region for booting the operating system from said first address space in said first storage section formed of flash memories and executes the read data to boot the operating system on the host.

Lee discloses said first address space being arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system (paragraph 0044; Fig. 2, element 18); *It should be noted that an operating system such as Windows contains a master boot record and a file management table (e.g. FAT).*

and wherein, upon booting of the host, said host reads data of the system region for booting the operating system from said first address space in said first storage

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section formed of flash memories and executes the read data to boot the operating system on the host (paragraph 0047).

Coulson and Lee are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Lee's NAND flash which stores boot code and the OS within Coulson's hybrid mass storage system. The motivation for doing so would have been to realize a faster booting speed.

The combination of Coulson/Lee does not expressly disclose wherein the data of the system region is duplicately stored in both the first and second storage sections.

Eigen discloses the data of the system region is duplicately stored in both the first and second storage sections (paragraph 0031). *It should be noted that the "flash memory chip" is equivalent to the "first storage region" and the "hard drive" is equivalent to the "second storage region".*

The combination Coulson/Lee and Eigen are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Eigen's duplicate storing of the operating system on both the flash chip and hard drive to Coulson/Lee's hybrid mass storage system. The motivation for doing so would have been to provide a redundant operating system element which maintains certain core functions of system even in the event of a hard drive malfunction.

5. **As per claim 28**, Coulson discloses a storage device, comprising:

a casing configured to be compatible with a hard disk drive (paragraph 0018; Fig. 1, element 130);

a connector detachably connectable to a host in accordance with the ATA interface standard (paragraph 0032; Fig. 6, elements 106 and 670);

a control unit disposed in said casing and configured to control inputting and outputting of data between the storage device and the host via said connector in accordance with the ATA interface standard (paragraph 0019; Fig. 1, element 137);

a first storage unit formed of flash memories disposed in said casing and connected to said control unit, said first storage unit being configured to provide a first address space that is allocated with a lower portion of an address space allocated to the storage device as a master drive (paragraphs 0018, 0021, and 0027; Fig. 1, element 135; Fig. 2);

and a second storage unit formed of a hard disk drive disposed in said casing and connected to said control unit, said second storage unit being configured to provide a second address space that is allocated with an upper portion of the address space allocated to the storage device as a slave drive and arranged to store application data to be used by an application operating on the host (paragraphs 0018 and 0021; Fig. 1, element 133; Fig. 2).

Coulson does not expressly disclose NAND flash memories;

said first address space being arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system;

and wherein, upon booting of the host, said host reads data of the system region for booting the operating system from said first address space in said first storage section formed of NAND flash memories and executes the read data to boot the operating system on the host.

Lee discloses NAND flash memories (paragraph 0044);

said first address space being arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system (paragraph 0044; Fig. 2, element 18); *It should be noted that an operating system such as Windows contains a master boot record and a file management table (e.g. FAT).*

and wherein, upon booting of the host, said host reads data of the system region for booting the operating system from said first address space in said first storage section formed of NAND flash memories and executes the read data to boot the operating system on the host (paragraph 0047).

Coulson and Lee are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Lee's NAND flash which stores boot code and the OS within Coulson's hybrid mass storage system. The motivation for doing so would have been to realize a faster booting speed.

The combination of Coulson/Lee does not expressly disclose wherein the data of the system region is duplicately stored in both the first and second storage units.

Eigen discloses the data of the system region is duplicately stored in both the first and second storage units (paragraph 0031).

The combination Coulson/Lee and Eigen are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Eigen's duplicate storing of the operating system on both the flash chip and hard drive to Coulson/Lee's hybrid mass storage system. The motivation for doing so would have been to provide a redundant operating system element which maintains certain core functions of system even in the event of a hard drive malfunction.

6. **As per claim 29**, Coulson discloses a storage system implemented in a computer system having an ATA controller, said storage system comprising:

- a casing (paragraph 0028; Fig. 4, element 430);

- an interface control section provided for connecting the casing to said ATA controller (paragraph 0029; Fig. 5, elements 450 and 590);

- a first storage unit formed of flash memories disposed in said casing and connected to said interface control section, said first storage unit being configured to provide a first address space that is allocated with a lower portion of an address space allocated to the storage device as a master drive (paragraphs 0018, 0021, and 0027; Fig. 1, element 135; Fig. 2);

- and a second storage unit formed of a hard disk drive disposed in said casing and connected to said interface control section, said second storage unit being configured to provide a second address space that is allocated with an upper portion of

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the address space allocated to the storage device as seen from said host, said second address space being arranged as a slave drive and arranged to store application data to be used by an application operating on said computer system (paragraphs 0018, 0021, and 0027; Fig. 1, element 133; Fig. 2).

Coulson does not expressly disclose said first storage unit arranged to store data of a system .region for booting an operating system on said computer system, the data of the system region including a master boot record, a file management table, and an operating system;

and wherein, upon booting of the computer system, said computer system reads, under control of said ATA controller, data of the system region for booting the operating system from said first address space allocated to said first storage unit formed of flash memories and executes the read data to boot the operating system on the computer system.

Lee discloses said first storage unit arranged to store data of a system .region for booting an operating system on said computer system, the data of the system region including a master boot record, a file management table, and an operating system (paragraph 0044; Fig. 2, element 18); *It should be noted that an operating system such as Windows contains a master boot record and a file management table (e.g. FAT).*

and wherein, upon booting of the computer system, said computer system reads, under control of said controller, data of the system region for booting the operating system from said first address space allocated to said first storage unit formed of flash

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memories and executes the read data to boot the operating system on the computer system (paragraph 0047).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Lee's NAND flash which stores boot code and the OS within Coulson's hybrid mass storage system. The motivation for doing so would have been to realize a faster booting speed.

The combination of Coulson/Lee does not expressly disclose wherein the data of the system region is duplicately stored in both the first and second storage units.

Eigen discloses the data of the system region is duplicately stored in both the first and second storage units (paragraph 0031).

The combination Coulson/Lee and Eigen are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Eigen's duplicate storing of the operating system on both the flash chip and hard drive to Coulson/Lee's hybrid mass storage system. The motivation for doing so would have been to provide a redundant operating system element which maintains certain core functions of system even in the event of a hard drive malfunction.

7. **As per claim 31**, Coulson discloses a computer system comprising:

a host having an ATA controller (paragraphs 0017 and 0032; Fig. 6, elements 106 and 610);

a storage device detachably connected to the host by way of said ATA controller (paragraph 0018; Fig. 6, element 430);

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said storage device being allocated with an address space as seen from said host (paragraph 0021; Fig. 2);

and comprising: a casing (paragraph 0018; Fig. 6, element 430);

a control unit disposed in the casing and detachably connected to said ATA controller (paragraph 0019; Fig. 1, element 137);

a first storage unit formed of flash memories disposed in said casing, said first storage unit being connected to said control unit, configured to provide a first address space which is allocated with a lower portion of an address space allocated to the storage device (paragraphs 0018 and 0021; Fig. 1, element 135; Fig. 2);

a second storage unit formed of a hard disk drive disposed in the casing and connected to said control unit, said second storage unit being configured to provide a second address space allocated with an upper portion of said address space and arranged to store application data to be used by an application operating on under control way of said ATA controller and said control unit (paragraphs 0018 and 0021; Fig. 1, element 133; Fig. 2).

Coulson does not expressly disclose said first storage unit arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system;

data of the system region for booting the operating system from said first address space allocated to the first storage unit formed of flash memories and executes the read data to boot the operating system on the host.

Lee discloses said first storage unit arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system (paragraph 0044; Fig. 2, element 18); *It should be noted that an operating system such as Windows contains a master boot record and a file management table (e.g. FAT).*

data of the system region for booting the operating system from said first address space allocated to the first storage unit formed of flash memories and executes the read data to boot the operating system on the host (paragraph 0047).

Coulson and Lee are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Lee's NAND flash which stores boot code and the OS within Coulson's hybrid mass storage system. The motivation for doing so would have been to realize a faster booting speed.

The combination of Coulson/Lee does not expressly disclose wherein the data of the system region is duplicately stored in both the first and second storage units.

Eigen discloses the data of the system region is duplicately stored in both the first and second storage units (paragraph 0031).

The combination Coulson/Lee and Eigen are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Eigen's duplicate storing of the operating system on both the

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flash chip and hard drive to Coulson/Lee's hybrid mass storage system. The motivation for doing so would have been to provide a redundant operating system element which maintains certain core functions of system even in the event of a hard drive malfunction.

8. **As per claim 4**, the combination of Coulson/Lee/Eigen discloses wherein a storage capacity of said first storage section is at least 156 M bytes (Coulson, paragraph 0021; Fig. 2).

9. **As per claim 6**, the combination of Coulson/Lee/Eigen discloses wherein said first storage section is a NAND flash memory (Lee, paragraph 0044; Fig. 1, element 18; Coulson, paragraph 0018; Fig. 1, element 135).

10. **As per claim 19**, the combination of Coulson/Lee/Eigen discloses wherein said first storage unit is configured with NAND flash memories (Lee, paragraph 0044; Fig. 1, element 18; Coulson, paragraph 0018; Fig. 1, element 135).

11. **Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulson in view of Lee, Avraham et al. (U.S. Patent 7,003,620) (hereinafter "Avraham"), and Eigen.**

12. **As per claim 30**, Coulson discloses a storage device for installation in a computer system having an ATA controller, said storage system comprising:

a casing configured to be compatible with a hard disk drive (paragraph 0018; Fig. 6, element 430);

a control unit disposed in said casing and configured to control inputting and outputting of data between the storage device and a host of the computer system under

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control of said ATA controller (paragraphs 0017, 0019, and 0032; Fig. 1, element 137; Fig. 6, elements 106 and 610);

a first storage unit formed of flash memories disposed in said casing, said first storage unit being connected to said control unit, configured to provide a first address space which is allocated with a lower portion of an address space allocated to the storage device (paragraphs 0018 and 0021; Fig. 1, element 135; Fig. 2);

a second storage unit formed of a hard disk drive disposed in said casing, said second storage unit being connected to said control unit, configured to provide a second address space which is allocated with an upper portion of the address space allocated to the storage device as a slave drive, and arranged to store application data to be used by an application operating on the host (paragraphs 0018 and 0021; Fig. 1, element 133; Fig. 2).

Coulson does not expressly disclose said first storage unit arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system;

a power source monitoring circuit provided with a condenser,

and wherein, upon booting of the host, said host reads, under control of said ATA controller, data of the system region for booting the operating system from said first storage unit formed of flash memories and executes the read data to boot the operating system on the host,

and wherein, upon a sudden power-off being detected, said source power source monitoring circuit maintains a power source voltage for a predetermined time by using an electric charge accumulated in the condenser, and the control unit operates to store file management data temporarily retained at such sudden power-off into the first storage unit formed of flash memories under the power source voltage maintained by the electric charge accumulated in the condenser.

Lee discloses said first storage unit arranged to store data of a system region for booting an operating system on the host, the data of the system region including a master boot record, a file management table, and an operating system (paragraph 0044; Fig. 2, element 18); *It should be noted that an operating system such as Windows contains a master boot record and a file management table (e.g. FAT).*

and wherein, upon booting of the host, said host reads, under control of said ATA controller, data of the system region for booting the operating system from said first storage unit formed of flash memories and executes the read data to boot the operating system on the host (paragraph 0047).

Coulson and Lee are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Lee's NAND flash which stores boot code and the OS within Coulson's hybrid mass storage system. The motivation for doing so would have been to realize a faster booting speed.

The combination of Couslon/Lee does not expressly disclose a power source monitoring circuit provided with a condenser,

and wherein, upon a sudden power-off being detected, said source power source monitoring circuit maintains a power source voltage for a predetermined time by using an electric charge accumulated in the condenser, and the control unit operates to store file management data temporarily retained at such sudden power-off into the first storage unit formed of flash memories under the power source voltage maintained by the electric charge accumulated in the condenser.

Avraham discloses a power source monitoring circuit provided with a condenser (col.8, lines 6-30; Fig. 2, elements 114 and 146); *It should be noted that "capacitor 146" is equivalent to a "condenser".*

and wherein, upon a sudden power-off being detected, said source power source monitoring circuit maintains a power source voltage for a predetermined time by using an electric charge accumulated in the condenser, and the control unit operates to store file management data temporarily retained at such sudden power-off into the first storage unit formed of flash memories under the power source voltage maintained by the electric charge accumulated in the condenser (col. 9, lines 27-34; Fig. 3, elements 304 and 306).

The combination of Coulson/Lee and Avraham are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply Avraham's built-in backup feature to Coulson/Lee's hybrid mass

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storage system. The motivation to do so would have been to allow reliably caching data while eliminating data loss in case of interruption in the supply of power from a host device.

The combination of Coulson/Lee does not expressly disclose wherein the data of the system region is duplicately stored in both the first and second storage units.

Eigen discloses the data of the system region is duplicately stored in both the first and second storage units (paragraph 0031).

The combination Coulson/Lee/Avraham and Eigen are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to implement Eigen's duplicate storing of the operating system on both the flash chip and hard drive to Coulson/Lee/Avraham's hybrid mass storage system. The motivation for doing so would have been to provide a redundant operating system element which maintains certain core functions of system even in the event of a hard drive malfunction.

13. Claims 7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Coulson in view of Lee and Eigen as applied to claims 27 and 29 above, and further in view of Ishida et al. (U.S. Patent Application Publication 2002/0019700) (hereinafter "Ishida").

14. **As per claims 7 and 20**, though more specifically claim 7, the combination of Coulson/Lee/Eigen discloses all the limitations of the claim except wherein said storage device is used as a storage medium of a car navigation system.

Ishida discloses a car navigation system (paragraph 0040; Fig. 1).

The combination of Coulson/Lee/Eigen and Ishida are analogous art because they are from the same field of endeavor, that being electronic devices.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine Coulson/Lee/Eigen's hybrid mass storage system and Ishida's car navigation system because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded the predictable results of realizing a faster booting speed of an operating system in a car navigation system.

15. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Coulson in view of Lee and Eigen as applied to claims 29 above, and further in view of Kon (U.S. Patent 6,249,838).

16. **As per claim 18**, the combination of Coulson/Lee/Eigen discloses all the limitations of the claim except wherein said first storage device and said second storage device are provided in one chassis having a slot, and said first storage device can be detached through said slot.

Kon discloses said first storage device and said second storage device are provided in one chassis having a slot (col. 9, lines 17-27; Fig. 6); *It should be noted that the "removable medium hard disk (RMHDD)" is equivalent to a "chassis", a "removable media pack" is equivalent to a "first storage device", and a "flash memory" is equivalent to the "second storage device".*

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and said first storage device can be detached through said slot (col. 9, lines 21-23; Fig. 6).

The combination of Coulson/Lee/Eigen and Kon are analogous art because they are from the same field of endeavor, that being data storage systems.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply Kon's RMHDD to Coulson/Lee/Eigen's hybrid mass storage system because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded the predictable results of a more flexible hybrid mass storage system.

Response to Arguments

17. Applicant's arguments filed August 25, 2011 with respect **claims 4, 6, 7, 18-20, and 27-31** have been considered but are moot in view of the new ground(s) of rejection above.

Conclusion

STATUS OF CLAIMS IN THE APPLICATION

The following is a summary of the treatment and status of all claims in the application as recommended by MPEP 707.70(i):

CLAIMS REJECTED IN THE APPLICATION

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Per the instant office action, **claims 4, 6, 7, 18-20, and 27-31** have received an action on the merits and are subject of a non-final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arpan P. Savla whose telephone number is (571)272-1077. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571) 272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arpan P. Savla/
Primary Examiner, Art Unit 2185
October 1, 2011